USSR

KARTSEV, I. D., and POLIYEVSKIY, S. A., Institute of Hygiene of Children and Adolescents of the Ministry of Health USSR, Order of Lenin State Central Institute of Physical Education

"Grouping of Professions for Applied Physical Training"

Moscow, Teoriya i Praktika Fizicheskoy Kultury, No 6, 1972, pp 36-39

Abstract: Due to their great variety, professions should be grouped according to identity and similarity of tasks required by each profession. This is necessary for the development of common physical training methods and for an early suitability determination of a given individual to a chosen progession. The suggested method is based on the establishment of physiological suitability criteria for different professions. The criteria are determined by correlation between the physical potential of the human organism and the profession requirements. The author analyzed several professions at a watch plant and pointed out the common traits among them. Using his own data and that of other authors, he grouped 360 professions into five groups according to their professional suitability criteria. These groups are: (1) Professions dealing with an assembly of units consisting of small parts, and the shoe and sewing industry professions. This group

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KARTSEV, I. D., and POLIYEVSKIY, S. A., Teoriya i Praktika Fizicheskoy Kultury, No 6, 1972, pp 36-39

includes 96 professions. (2) Professions which are characterized by sudden and unexpected complications which require immediate decision-making. An incorrect decision to remove the complex situation could mean loss of life of injury. To this group belong 210 professions, such as professions dealing with chemical reactors and reactions, cold and hot metal rolling mills, production of ceramic heat-resistant materials, and other. (3) Programmers and computing personnel at computing centers and at many plants and factories. (4) Setup men at plants and factories (turret lathe, milling, grinding, and other metal-working machines). The total number of professions in this group is 38. (5) Tractor and machinists group (20 professions). The training by means of physical culture and sports of functions that are included in the suitability criteria should determine the content of occupational suitability preparation for complex professions and their groups.

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1/2 GC9 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--FINDS OF GOLD IN COASTAL AND ESTUARY SANDS ON THE NORTHWESTERN SHORE OF THE BLACK SEA -U-
AUTHOR-(02)-POLKANOV, YU.A., YALOVENKO, I.P.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 905-8 (MINERAL)

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GOLD, MINERAL, DIAMOND, PROSPECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0554 STEP NO--UR/0020/70/191/004/0905/0908

CIRC ACCESSION NO--AT0126301

UNCLASSIFIED

2/2 0C9 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0126301

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NINE SAMPLES, WEIGHING 7-1800 KG, WERE TAKEN FROM VARIOUS PLACES OF THE TITLE TERRITORY AND STUDIED TO DET. METHODS FOR DETECTION AND PROSPECTING FOR DIAMONDS. AU WAS FOUND IN 7 SAMPLES AMTS. UP TO SEVERAL TENS OF AU GRAINS PER SAMPLE. THE AU FROM VARIOUS PLACES HAD A SIMILAR GRAIN SIZE (0.5-0.5 MM) AND SCARCELY DIFFERED MORPHOL. THE CLASTIC MATERIAL, DELIVERED BY RIVER WATER WAS PROBABLY ONE OF THE SOURCES OF AU, BECAUSE TRACES OF AU WERE DETECTED IN ALLUVIAL DEPOSITS OF DNIESTER AND SOUTHERN BUG RIVERS. THE PRESENCE OF AU IN MOST SAMPLES INDICATED A RATHER MORE WIDELY DISTRIBUTED AU CONTAMINATION THAN AN ACCIDENTAL DISCOVERY. A SPECIAL STUDY OF MARINE, BAY, AND COASTAL MARINE FORMATIONS ON THE NORTHWESTERN SHORES OF THE BLACK SEA IS SUGGESTED TO DET. THE AURIFEROUS POTENTIALS OF THE TERRITORY. FACILITY: INST. MINER, RESUR., SIMFEROPOL, USSR.

UNCLASSIFIED

USSR

UDC 019.941

BONDAR' I. I., "Kiyevgeologiya" Trust, and POLKANOV, YU. A., Institute of Mineral Resources

"Review of a Book by Gurvich, S. I., and Bolotov, A. M., Entitled: Titanium-Zirconium Placer Deposits of the Russian Platform and Prospecting Problems"

Moscow, Razvedka i Okhrana Nedr, No 7, Jul 70, pp 63-64

Abstract: The monograph consists of an introduction, five chapters, and a conclusion, and contains illustrations, tables, and a bibliography. The titanium-zirconium placer deposits are considered to be a peculiar type of placers with specific conditions of formation and material composition. The first chapter deals with basic principles of formation of titanium-zirconium placers depending on different geological, tectonic, and other natural factors; the second discusses the characteristic of the basic provinces of complex placers, which developed during different-age deposits -- from the Pre-Cambrian to Quarternary period; the third chapter considers the material composition of complex placers, presents a detailed description of rare-metal and titanium

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BONDAR", I. I., et al., Razvedka i Okhrana Nedr, No 7, Jul 70, pp 63-64

minerals, and also deals with the characteristics of accompanying non-ore minerals, which, in many instances, are of practical interest; the fourth chapter dwells on an analysis of the possible appearance of titanium-zirconium placers in regions of the platform; the fifth considers the methods of prediction, prospecting, sampling, and preliminary valuation of complex placer deposits.

Diagnosis

USSR UDC: 576.851.513.078

POLKHOVSKIY, V.A., Belorussian Scientific Research Veterinary Institute

"Value of the Lecithovetellin Reaction in the Differential Diagnosis of Bac. cereus"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, 1970, pp 82-86

Abstract: Study of the lecithovitellin reaction in 214 Bac. cerus strains (isolated from soil, water, plant substrates, food products, humans suffering from food poisoning, milk and affected udders of cows with mastitis, swine with atrophic rhinitis, and chick embryos) on a solid egg yolk medium and in a liquid NaCl-egg yolk suspension, showed that 96.8% of the strains possessed lecithinase activity. Since most of the other aerobic spore-forming bacteria do not have lecithinase activity, the lecithovitellin reaction is a useful means of differentiating Bac. cereus. Bac. cereus strains isolated from the udders of cows with mastitis and chick embryos split egg yolk lecithin more intensively than did strains isolated from soil, water, and other natural sources. Analysis of the pathogenicity of 10 Bac. cereus strains for white mice and guinea pigs revealed that an infectious dose of 150 microbial cells was lethal to all mice. Eight of the strains caused keratitis in guinea pigs. The virulence of Bac. cereus maybe due to the presence of lecithinase and, possibly, crystalline inclusions of a protein nature.

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Acc. Nr: AP0044185 Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, 1970, Nr 2, pp 82-86

THE SIGNIFICANCE OF LECITHO-VITELLINE REACTION FOR THE DIFFERENTIAL DIAGNOSIS OF BAC. CEREUS

Polkhovskiy, V. A.

The authors studied the lecitho-vitelline reaction in 214 strains of Bac. cereus isolated from soil, water, plant substrates, food stuffs, tonsils of swine in atrophic rhinitis, milk and the affected tissues of the milk gland of cows suffering from mastitis, as well as from the feces of human beings during food poisoning and from perished chick embryos. Irrespective of the source from which they were isolated, 96.8% of the strains studied displayed the presence of lecithinases. Consequently, the mentioned reaction could be recommended as a diagnostic sign for differentiation of Bac. cereus from other aerobic spore-forming bacteria. Bac. cereus strains isolated from the affected tissue of the milk gland of cows suffering from mastitis and from the perished chick embryos were characterized by a greater lecithinase activity, in comparison with the strains isolated from other natural sources.

Pathogenicity of 10 strains of Bac. cereus for albino mice and guinea pigs was studied. All of these strains proved to cause a considerable mortality in mice infected intraperitoneally with a dose of 150 million microbial cells; eight of these strains caused keratitis in guinea pigs. It is supposed that pathogenicity of Bac. cereus is conditioned by the presence in them of lecithinase, and, possibly, of crystalline inclusions of protein nature.

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REEL/FRAME
19770670

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USSR

UDC 577.153.2.2:576.851.5

POLKHOVSKIY, V. A., Belorussian Scientific Research Institute of Veterinary Medicine, Division of Microbiology and Immunology, Minsk

"Lecithinase Activity of Bacillus cereus Strains Isolated from Various Natural Sources"

Moscow, Mikrobiologiya, Vol 39, No 4, Jul/Aug 70, pp 567-573

Abstract: Lecithinase activity was studied in 125 Bacillus cereus strains isolated from soil, water, food, persons suffering from food poisoning, dead chick embryos, milk, mammary gland tissue from cows with mastitis. Strains were cultured on egg yolk medium for 20 days. The lecithinase activity of the strains varied. Some strains formed choline and a large amount of acid-soluble phosphorus (types C and D), others hydrolyzed lecithin in a similar manner but with a lower yield of acid-soluble choline (type D), and still others did not alter the medium, i.e., did not split lecithin and apparently contained neither lecithinase C nor lecithinase D. The type of lecithinase was independent of the source from which the strains were isolated. Those isolated from dead chick embryos, milk, or cow mammary glands exhibited higher lecithinase activity than did the strains isolated from soil or water.

USSR

UDC: 669.295:620.1

POL'KIN, I. S. and SINYAVSKAYA, S. N.

"Heat and Thermomechanical Treatment of the VT16 Grade Alloy"

Moscow, Tsvetnyye Metally, No 10, Oct 73, pp 59-61

Abstract: The authors study the conditions of heat treatment and hot and cold deformation on the phase composition and properties of the VT16 grade alloy having the following composition by percent: 2.45 Al, 4.8 Mo, 4.55 V, and the remainder Ti. The results show that the maximum degree of deformation of up to 70 percent during cold drawing is obtained after annealing at 780°C for two hours. Aging at 400°C makes it possible to increase ultimate strength up to 160 kg/mm^2 after quenching in water and up to 135 kg/mm^2 after quenching in air. The experimental portion of the work was completed by S. A. Afanas'yeva.

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1/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INVESTIGATION OF THE KINETICS OF BETA PHASE DECOMPOSITION IN TITANIUM BASE MOLYBDENUM ALLOYS -U-

AUTHOR-(02)-KASPAROVA, O.V., POLKIN, I.S.

COUNTRY OF INFO--USSR

SOURCE--TSVETNAIA METALLURGIIA, VOL. 13, NO. 2, 1970, P. 120-125

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TITANIUM ALLOY, MOLYBDENUM ALLOY, PHASE ANALYSIS, X RAY ANALYSIS, BETA PHASE, METAL PHASE SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0195 STEP NO--UR/0136/70/013/002/0120/0125

CIRC ACCESSION NO--AP0123964

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510006-3"

2/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123964

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE KINETICS OF BETA PHASE DECOMPOSITION OF TITANIUM ALLOYS WITH 15, 20, AND 25 PER CENT MOLYBDENUM BY METALLOGRAPHIC, DILATOMETRIC, X RAY PHASE ANALYSIS AND BY DETERMINING THE MECHANICAL PROPERTIES OF THE ALLOYS. IT IS SHOWN THAT BOTH BETA PHASE DECOMPOSITION AND STRAIN HARDENING ARE INHIBITED BY AN INCREASE IN MOLYBDENUM CONTENT, AND THAT AN INCREASE IN MOLYBDENUM CONTENT ALSO LEADS TO AN INCREASED NONUNIFORMITY OF BETA PHASE DECOMPOSITION ACROSS THE GRAINS. IN TITANIUM ALLOYS WITH 15 PER CENT MOLYBDENUM, BETA PHASE DECOMPOSITION IS STILL UNIFORM, WHILE FOR ALLOYS WITH 20 AND 25 PER CENT MOLYBDENUM, IT IS ACCOMPANIED BY THE FORMATION OF BOUNDARY ZONES FREE OF PHASE SEPARATION. FACILITY: MOSKOVSKII INSTITUT STALI I SPLAVOV, MOSCOW, USSR. FACILITY: VSESOIUZNYI INSTITUT LEGKIKH SPLAVOV.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--KINETICS OF THE DECOMPOSITION OF THE BETA SOLID SOLUTION IN TITANIUM MOLYBDENUM ALLOYS -U-

AUTHOR--POLKIN, I.S.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V. U. Z. TSVETNAYA MET., 1970, (2), 120-125

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL REACTION KINETICS, SOLID SOLUTION, X RAY DIFFRACTION ANALYSIS, METAL QUENCHING, CHEMICAL DECOMPOSITION, TITANIUM ALLOY, MOLYBDENUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1503 STEP NO--UR/0149/70/000/002/0120/0125

CIRC ACCESSION NO--AT0130432

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 031

CIRC ACCESSION NO--AT0130432

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE DECOMPOSITION OF THE BETA SOLID SOLUTION IN TI-MO ALLOYS OF VARIOUS COMPOSITIONS WERE STUDIED BY METALLOGRAPHIC AND DILATOMETRIC ANALYSIS AND X RAY DIFFRACTION, AFTER QUENCHING FROM THE BETA REGION AND AGEING AT 400-450DEGREESC. WITH INCREASING PROPORTION OF MO IN THE ALLOY THE DECOMPOSITION OF THE BETA SOLID SOLUTION BECAME SLOWER AND THE TENDENCY TOWARDS HARDENING OF THE ALLOY DIMINISHED. INCREASING THE PROPORTION OF MO ALSO INCREASED THE NONUNIFORMITY OF THE DECOMPOSITION OF THE SOLID SOLUTION IN VARIOUS PARTS OF THE GRAINS.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11SEP70

1/2 025

TITLE--CYCLIC UNSATURATED COMPOUNDS. 31. CONVENIENT METHOD FOR DETERMINING SUBSTITUENT CONFIGURATION IN POSITION SEVEN OF THE NORBORNENE SKELETON

AUTHOR--MIKOS, E.P., FADEYEVA, T.M., AKHREM, A.A., MIRONOV, V.A., POLKOVNIKOV, B.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSR, SER. KHIM, 1970, (1), 129-34

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ANHYDRIDE, DICARBOXYLIC ACID, CYCLIC GROUP, HEPTENE, HYDROGENATION, THERMAL DECOMPOSITION, NMR SPECTRUM, IR SPECTRUM, CHEMICAL KINETICS, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/2671 STEP NO--UR/0062/70/000/001/0129/0134

CIRC ACCESSION NO--AP0200275

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0200275

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGENATION OF ENDO,ANHYDRIDES OF 7,SYN,METHYL,AND,7,ANTI,METHYLBICYCLO (2.2.1) HEP,2,TENE,5,6,DICARBOXYLIC ACIDS WAS STUDIED KINETICALLY; THE SYN ISOMER WAS HYDROGENATED AT ABOUT HALF THE RATE DISPLAYED BY THE ANTI ISOMER OR BY THE UNSUBSTITUTED ANHYDRIDE. THE HYDROGENATION MIXT. FROM THE SYN ISOMER GAVE 7,SYN,METHYLBICYCLO (2.2.1) HEPTANE,5,6,DICARBOXYLIC ANHYDRIDE, M. 122 TO 3DEGREES, WHICH HYDROLYZED TO FREE DICARBOXYLIC ACID, DECOMPD. 178 TO 9DEGREES (DI ME ESTER, B SUB2 48 TO 9DEGREES, N PRIME20 SUBD 1.4933, WAS PREPD. WITH CH SUB2 N SUB2). SIMILARLY THE ANTI ISOMER WAS HYDROGENATED TO THE SATD. ANALOG, M. 134 TO 6DEGREES, WHICH GAVE THE FREE 7,ANTI,METHYLBICYCLO (2.2.1) HEPTANE,5,6,DICARBOXYLIC ACID, DECOMPD. 169 TO 71DEGREES. NMR AND IR SPECTRAL CURVES WERE SHOWN. THE CONFIGURATION OF THE SUBSTITUENT IN THE 7 POSITION IN THE BICYCLOHEPTENE SKELETON CAN BE CONVENIENTLY DETD. BY THE DETN. OF RELATIVE RATES OF HYDROGENATION.

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UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--PARAMETRIC LUMINESCENCE AND LIGHT SCATTERING ON POLARITONS -U-

AUTHOR-(03)-KLYSHKO, D.N., PENIN, A.N., POLKOVNIKOV, B.F.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA. ZH. EKSP. TEOR. FIZ. 1970, 11(1) 11-14

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIGHT SCATTERING, CRYSTAL LUMINESCENCE, NIOBATE, LITHIUM COMPOUND, CRYSTAL POLARIZATION, ARGON LASER, SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1790 STEP NO--UR/0386/70/011/001/0011/0014

CIRC ACCESSION NO--AP0054627
UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0054627

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN OBSERVATION OF THE SCATTERING IN A WIDE FREQUENCY INTERVAL ENABLES MEASURING THE DISPERSION OF NONLINEAR AND LINEAR POLARIZABILITIES OF THE SUBSTANCE AND PROVES TO BE A SUITABLE METHOD OF NONLINEAR SPECTROSCOPY. BY USING A LI NIOBATE CRYSTAL, THE SCATTERING WAS OBSD. IN A TRANSITION REGION WHERE IT WAS CAUSED BOTH BY THE ELECTRON AND LATTICE NONLINEARITIES. THE FREQUENCY DEPENDENCE OF SCATTERED LIGHT ON THE OBSERVATION DIRECTION IS A CHARACTERISTIC SIGN OF THE COHERENT INELASTIC SCATTERING. A FREQUENCY ANGLE SPECTRUM WAS OBTAINED ON PLACING THE SPECTROGRAPH SLIT (PARALLEL TO THE CRYSTAL AXIS) INTO THE LENS FOCUS; THE CXCITING BEAM OF AN AR LASER WAS PERPENDICULAR TO THE CRYSTAL AXIS AND HAD EXTRAORDINARY POLARIZATION WHILE THE SCATTERED LIGHT AND POLARITIONS HAD ORDINARY ONES. THE MOST IMPORTNAT FEATURE OF THE SPECTRUM DIAGRAM WAS A BRIGHTNESS GAP OF THE SCATTERED RADIATION AT AN IDLE FREQUENCY (THE DIFFERENCE BETWEEN THE FREQUENCIES OF INCIDENT AND OBSD. LIGHTS) OF SIMILAR TO 1500 CM PRIME NEGATIVI; IT WAS CAUSED BY MUTUAL COMPENSATION OF THE ELECTRON AND LATTICE NONLINEARITIES ON THIS FREQUENCY. THE EXPTS. INDICATED THAT THE ABSORPTION ON THE IDLE FREQUENCY DID NOT AFFECT IMMEDIATELY THE POWER OF SCATTERED LIGHT OP-D OMEGA. THE EFFECT OF RAMAN SCATTERING ON SMALL ANGLES MAKES IT EASY TO DET. THE LONGITUDINAL OR TRANSVERSE TYPES OF POLARIZATION OF THE LATTICE VIBRATIONS.

UNCLASSIFIED

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UDC 621.373:530.145.6

USSR

IVANOV, A. A., KULEV, V. A., POLKOVNIKOV, S. P.

"Calculating the Electric Field of a Six-Pole Capacitor with Variable Transverse Cross Section"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 2), Leningrad, 1970, pp 1210-1215 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D190)

Translation: The intensity of the electric field in a sensor with a variable gap is calculated. The calculational results obtained permit calculation of the component intensities of the electric field and its modulus at any point of the selector. It is demonstrated that in the indicated selectors, a longitudinal component of the field intensity occurs. Nonuniformity of the field in the selector with a variable gap, which determines the effectiveness of sorting of the molecules, is greater than in selectors with a constant gap. On the basis of the electric field equations obtained, the equations of motion of the molecules in the selector can be compiled. The latter equations permit determination of the parameters of the molecular flux at the output of the selector.

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1/4 031 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DON'T TAKE A DEEP BREATH -U-

AUTHOR--POLKOVNIKOV, Y.

COUNTRY OF INFO--USSR

SOURCE--SPUTNIK, 1970, NR 3, PP 125-129

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATION, RESPIRATORY SYSTEM DISEASE, BLOOD CIRCULATION, OXYGEN CONSUMPTION, CARBON DIOXIDE, IR GAS ANALYZER, BALLISTOCARDIOGRAPH, COMPUTER APPLICATION, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0368 STEP NO--UR/0738/70/000/003/0125/0129

CIRC ACCESSION NO--AP0135861

UNCLASSIFIED

2/4 031 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135861

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTRARY TO THE WIDELY HELD OPINION THAT TAKING DEEP BREATH HAS AN INVIGORATING EFFECT UPON THE ORGANISM, THE AUTHOR ATTEMPTS TO SHOW THAT DEEP RESPIRATION INEVITABLY LEADS TO SUCH DISEASES OF OUR "MODERN CIVILIZATION" AS HYPERTOXICITY, STENOCARDIA AND BRONCHIAL ASTHMA. IN 1960, KONSTANTIN BUTEYKO, FORMERLY ASSOCIATED WITH THE FIRST MOSCOW MEDICAL INSTITUTE, BECAME HEAD OF THE NOVOSIBIRSK PROBLEM LABORATORY. THE MAIN TASK OF THIS LABORATORY WAS TO STUDY THE PHYSIOLOGY AND PATHOLOGY OF RESPIRATION AND BLOOD CIRCULATION. THE "PHYSIOLOGICAL COMBINE" OF THIS LABORATORY, CONSISTING OF 14 INTRICATE ELECTRONIC DEVICES, PROVIDED UP TO 100,000 BITS OF INFORMATION ON RESPIRATION AND BLOOD CIRCULATION WITHIN ONE HOUR. AN INFRARED ANALYZER DETERMINED EACH 0.08 SEC THE PERCENTAGE OF CO SUB2 CONTENT IN INHALED AND EXHALED AIR. ANOTHER INSTRUMENT MEASURED THE AMOUNT OF OXYGEN IN THE INHALED AIR DOWN TO AN ACCURACY OF TENTHS OF ONE PERCENT. ALSO, THE RATES OF INHALING AND EXHALING WERE RECORDED, 12 EKG'S WERE TAKEN, THE HEART TONE AND PULSATION OF THE SMALLEST VESSELS OF HAND FINGERS WERE RECORDED ALONG THREE CHANNELS. THREE BALLISTICS, CARDIOGRAPHS MEASURED THE SPEED AND THE ACCELERATION OF BODY MOVEMENT DURING HEAT BEATS ALONG THREE INTERPERPENDICULAR DIRECTIONS. THE MEASURABLE MAGNITUDE OF THE BODY MOVEMENT WAS THOUSANDTHS OF A MILLIMETER. UNTIL RECENTLY, IT WAS BELIEVED THAT DEEP RESPIRATION SATURATES THE HUMAN BODY WITH OXYGEN AND, CONSEQUENTLY, THE METABOLIC PROCESSES WITHIN THE CELL GAIN IN MOBILITY AND ENERGY. THIS THEORY PROVED TO BE WRONG.

UNCLASSIFIED

3/4 031 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135861

ABSTRACT/EXTRACT--THE INFORMATION YIELDED BY COMPUTERS HAS SHOWN THAT THE CONTENT OF OXYGEN IN BLOOD DOES NOT INCREASE DURING DEEP RESPIRATION, SIMPLY BECAUSE BLOOD IS SATURATED WITH OXYGEN TO THE LIMIT DURING NORMAL RESPIRATION. MOREOVER, K. BUTEYKO, WHO HAD DISCOVERED THE SO CALLED VENTILATION EFFECT, WAS ABLE TO SHOW THAT A CO SUB2 PERFORMS A VERY IMPORTANT WORK WITHIN THE ORGANISM. THE CELL FUNCTIONS BEST WHEN IT CONTAINS 1-2 PERCENT O SUB2 AND 7-8 PERCENT CO SUB2. DURING DEEP RESPIRATION, CO SUB2 DISINTEGRATES, DISRUPTING THE ACTIVITY OF THE NERVOUS SYSTEM, INTENSIFYING ALKALI REACTION, AND CHANGING THE ACTIVITY OF THE FERMENTS (OF WHICH MORE THAN 700 ARE KNOWN BY NOW). THE KIYEV ACADEMICIAN GULYY HAS DISCLOSED YET ANOTHER IMPORTANT ROLE PLAYED BY CO SUB2: WITHOUT IT, THE SYNTHESIS OF AMINO ACIDS IS IMPOSSIBLE. THUS, K. BUTEYKO AND HIS COWORKERS, USING THE PHYSIOLOGICAL COMBINE, SUCCEEDED IN UNCOVERING THE MECHANISM OF THE MOST FREQUENT AND DANGEROUS DISEASES OF MANKIND: ASTHMA, STENOCARDIA, INFARCT, STROKE, AND HYPERTOXICITY. THE TREATMENT OF THESE DISEASES CONSISTS OF BREAKING THE PATIENT'S HABIT TO BREATH DEEPLY BY APPLYING A COMPLEX SYSTEM OF RESPIRATION EXERCISES. THE PATIENT SHOULD GET USED TO INHALING AND EXHALING SLOWLY. THIS METHOD HAS BEEN CALLED "VOLITIONAL LIQUIDATION OF DEEP RESPIRATION". THE RESULTS OBTAINED WITH THIS METHOD ARE HIGHLY ENCOURAGING. MORE THAN 1,000 PATIENTS HAVE BEEN CURED. IN JANUARY-FEBRUARY, 1968, AT THE DIRECTION OF THE U.S.S.R. DEPARTMENT OF HEALTH, BUTEYKO'S METHOD WAS FORMALLY TESTED AT THE LENINGRAD INSTITUTE OF PULMONOLOGY.

UNCLASSIFIED

4/4 031 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135361

ABSTRACT/EXTRACT--STAFF MEMBERS OF THE LABORATORY DEMONSTRATED WITH GREAT SUCCESS THE HEALING EFFECT OF THIS METHOD ON 46 PATIENTS WITH ACUTE BRONCHIAL ASTHMA. PAROXYSMS DISAPPEARED IN MOST PATIENTS WITHIN A FEW MINUTES; TWO TO THREE MONTHS LATER, THEY WERE ABLE TO RESUME THEIR NORMAL WAY OF LIFE.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--METHOD FOR THE LOCAL IRRADIATION AND INVESTIGATION OF THE WEAR RESISTANCE OF DRILLS -U-

AUTHOR-(02)-POLKOVNIKOVA, A.G., FILKIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, MASHINOSTROYENIYE, NO. 1, 1970, PP 134-138

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WEAR RESISTANCE, METAL DRILLING, RADIOACTIVE TRACER, CADMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0519 STEP NO--UR/0145/70/000/001/0134/0138

CIRC ACCESSION NO--AT0100979

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0100979

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES A METHOD FOR THE LOCAL IRRADIATION OF DRILLS, IN AN ATTEMPT TO STUDY DRILL WEAR. FOR THIS STUDY, A SPECIAL CADMIUM CASING WAS DESIGNED TO PROTECT THE DRILLS FROM THERMAL NEUTRONS AND TO PROVIDE FOR IRRADIATION OF ONLY THE CUTTING TIP OF THE DRILL. A SIGNIFICANT DIFFERENCE IN THE SPECIFIC RADIOACTIVITY OF THE PROTECTED AND UNPROTECTED PORTIONS OF THE DRILL WAS NOTICED (1:100), AND THE CASING EFFECTIVENESS WAS CHECKED BY RADIOCHEMICAL ANALYSIS. IT WAS THEN POSSIBLE PRACTICALLY TO ELIMINATE THE EFFECT OF FLUTE WEAR ON CHIP RADIOACTIVITY. IN THE TESTS, 80 CAREFULLY SELECTED STANDARD DRILLS WERE USED TO DEPTHS OF 15 MM WITHOUT LUBRICATION. THE DRILLS WERE IRRADIATED FOR 22 HOURS IN A NEUTRON FLUX OF 0.12 TIMES 10 PRIME13 N-CM PRIME2 TIMES SEC. THE AMOUNT OF DRILL WEAR WAS DETERMINED BY MEASURING THE RADIOACTIVITY OF 20 GRAMS OF CHIP CURL WITH A GEIGER COUNTER, THUS YIELDING A RELATIVE INDICATION OF WEAR. TO DETERMINE THE WEIGHT VALUE OF THE WEAR, A FORMULA IS DERIVED WHICH COMPARES CHIP RADIOACTIVITY AND WEIGHT AGAINST AN IRRADIATED SAMPLE OF THE DRILL MATERIAL. GRAPHS ARE SHOWN WHICH REFLECT WEAR BASED ON THE NUMBER OF HOLES DRILLED, CHANGES IN DRILL SPEED, AND FEED. THE TESTS SHOWED THAT WHEN DRILLING 60-100 HOLES, DURING THE INITIAL PERIOD, WEAR IS INTENSIVE, AND DROPS OFF SMOOTHLY AND BEGINS TO STABILIZE AFTER ABOUT 60 HOLES. ONE OF THE GRAPHS SHOWS THE PRESENCE OF A RANGE OF DRILLING SPEEDS FOR WHICH WEAR IS MINIMAL.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--A STUDY OF ENCEPHALOGENIC ACTIVITY OF PERTUSSIS MICROBES IN DIFFERENT ANIMALS -U-

AUTHOR-(02)-KANCHURIN, A.KH., POLKOVNIKOVA, T.F.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 5, PP 48-50

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--WHOOPING COUGH, WHITE MOUSE, ANTIGEN, ENCEPHALOMYELITIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0292 STEP NO--UR/0219/70/069/005/0048/0050

CIRC ACCESSION NO--AP0122494

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0122494
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MONGREL GUINEA PIGS, RABBITS, ALBINO RATS AND ALBINO MICE WERE SENSITIZED WITH PERTUSSIS MICROBES IN AN OIL MIXTURE WITH CEREBRAL ANTIGEN. A TYPICAL EXPERIMENTAL ALLERGIC ENCEPHALOMYELITIS DEVELOPED IN GUINEA PIGS, RABBITS AND RATS. UPON CONFRONTATION OF THE ENCEPHALITIC ACTIVITY OF PERTUSSIS MICROBES IT WAS FOUND THAT GUINEA PIGS PROVED TO BE THE MOST SENSITIVE. RABBITS AND RATS WERE LESS SENSITIVE. ALBINO MICE WERE RESISTANT TO EXPERIMENTAL ALLERGIC ENCEPHALOMYELITIS. FACILITY: I. M. MECHNIKOV INSTITUTE OF VACCINES AND SERA, MOSCOW.

UNCLASSIFIED

USSR

UDC 576.858.095.383

BEKTEMIROVA, M. S., KARAKUYUMCHYAN, M. K., and POLKOVNIKOVA, V. YA., Moscow Scientific Research Institute of Virus Preparations

"Individual Features of Interferon Production Induced by Pyrogenal in Randombred and Purebred Mice"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 608-611

Abstract: Wide variations were observed in interferon titers in mice 2 hrs after intravenous injections of 10 mcg of sterile pyrogenal. By dividing the results into 4 groups of titers of less than 20, 20-80, 160-320, and 1,280 the following percent distributions of mice were obtained: randombred -- 12, 34, 37, and 17; BALB line - 4, 59, 37, and 0; A line -- 0, 43, 41, and 16; and CC57Br line -- 0, 41, 41, and 18. Even though the distribution span among purebred rats is smaller, the difference is not significant. As a comparative study, Newcastle disease virus was administered 2 weeks prior to or after injection of pyrogenal. No correlation was found between the interferon titers induced by these two agents. It is suggested that there are individual variations in the number of antibody-producing cells and that different agents have different mechanisms of action and act on different types of cells.

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USSR UDC: 51:155.001.57:612.82

POLLYAK, Yu. G.

"Probability Computer Modeling of Planned Systems (Outline of the General Methodology)"

Tr. Radiotekhn. in-ta AN SSSR (Works of the Radio Engineering Institute, Academy of Sciences of the USSR), 1970, No 3, pp 48-64 (from RZh-Matematika, No 11, Nov 71, Abstract No 11V896)

Translation: The paper deals with problems of statistical modeling of planned systems involving analysis of a series of models, specifically the problem of constructing a model and checking its accuracy. Recommendations on solving these problems are systematized within the framework of that branch of modeling methodology called dynamic modeling. It is noted that the dynamics approach to traditional branches of modeling methodology has made possible the construction of a system of algorithms in which the accuracy with which elementary operations are performed (e. g., simulation of random events, quantities, and processes) can be varied by changing the complexity of the program. Bibliography of 16 titles. Author's resumé.

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USSR

UDC: 51:155.001.57:612.82

POLLYAK, Yu. G.

"Probabilistic Modeling of Projected Systems on Computers"

Tr. Radiotekhn. in-ta AN SSSR (Works of the Radio Engineering Institute of the Academy of Sciences of the USSR), 1970, No 3, pp 48-64 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V896)

Translation: The author discusses problems of statistical modeling of projected systems related to analysis of a series of models, in particular the problem of constructing and checking the accuracy of a model. Recommendations on solving these problems are systematized within the framework of that division of modeling methodology which is called modeling dynamics. It is noted that the approach from the standpoint of dynamics to the traditional divisions of the methodology enabled laying the basis for construction of a system of algorithms which permit variation of the accuracy of carrying out elementary modeling operations (such as simulation of random events, quantities, processes) at the expense of program complexity. Bibliography of 16 titles. Author's resumé.

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CSO: 1843-W

USSR

POLYAK, L. Kh.

"Algorithm for Recognition of Patterns of Objects which Change with Time"

Matematika i Sotsiologiya [Mathematics and Sociology -- Collection of Works], Novosibirsk, 1972, pp 94-102 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V705 by V. Mikheyev).

Translation: An algorithm is described for the solution of the following problem. It is assumed that the value of characteristics $x_1, \ldots, x_n$ can be calculated for any object, while membership of the object in one of the possible patterns cannot be directly established. Therefore, analysis includes a learning sample -- a set of objects for which it is known to which class each belongs. Using this sample, a decision rule must be constructed, relating the objects to one class or another. One possible method of solution of this problem is suggested, the so-called "voting method."

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1/4 023 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--STRATEGIC FORCES IN THE 1970S -U-

AUTHOR--POLMAR, N.

COUNTRY OF INFO--USSR

SOURCE--NAVY, MARCH 1970, P 86

DATE PUBLISHED----MAR70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MILITARY SCIENCES, MISSILE TECHNOLOGY

TOPIC TAGS--STRATEGIC THREAT, AIR DEFENSE THREAT, MULTIPLE INDEPENDENT REENTRY VEHICLE/(U)E2 CLASS SUBMARINE, (U)C CLASS SUBMARINE, (U)Y CLASS SUBMARINE, (U)SS9 ICBM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0648 STEP NO--UK/0013/70/000/000/0086/0086

CIRC ACCESSION NO--AP0113527

UNCLASSIFIED

2/4 023 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113527

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS GROWING CONCERN IN THE UNITED STATES MILITARY FOR THE SOVIET INCREASE IN NUCLEAR STRIKE CAPABILITY. SOMETIME IN 1969 THE SOVIET LAND BASED ICBM STRENGTH SURPASSED THAT OF THE UNITED STATES WHICH IS KNOWN TO BE COMPRISED OF 1,000 MINUTEMAN ICBMS AND 54 TITAN ICBMS AT BASES IN THE CENTRAL AND NORTHERN UNITED STATES. IN ADDITION, THE US STRATEGIC RETALIATION FORCES CONSIST OF PERHAPS 25 NUCLEAR SUBMARINES AT SEA WITH SOME 400 POLARIS MISSILES AND ABOUT 300 LONG RANGE B-52 JET BOMBERS AVAILABLE FOR A NUCLEAR STRIKE AT ANY GIVEN TIME. SOVIET GROWTH THE NUMBERS AND CAPABILITY OF SOVIET STRATEGIC OFFENSIVE FORCES ARE EXPANDING. THE SOVIET STRATEGIC ROCKET FORCE NOW HAS ABOUT 1,200 ICBMS WHICH COULD REACH TARGETS IN THE UNITED STATES PLUS PERHAPS 700 MEDIUM AND INTERMEDIATE RANGE BALLISTIC MISSILES WHICH COULD STRIKE TARGETS IN WESTERN EUROPE. IN RELATION TO THE SOVIET ICBM AND SUBMARINE MISSILE FORCES, THE SOVIET LONG RANGE AIR FORCE CANNOT BE CONSIDERED A MAJOR THREAT TO THE UNITED STATES BECAUSE OF LIMITED AIRCRAFT NUMBERS AND RANGE. HOWEVER, SOME ONE WAY STRIKES AGAINST U.S. TARGETS WITH RED FLIERS PARACHUTING INTO THE SEA OR EVEN THE UNITED STATES AND CANADA CANNOT BE DISCOUNTED. (THIS ONE WAY STRIKE MISSION WAS CONSIDERED BY THE U.S. STRATEGIC BOMBER FORCE IN THE 1950S). AT SEA THE SOVIETS HAVE A CONSIDERABLE SUBMARINE LAUNCHED MISSILE FORCE CONSISTING OF SOME 45 BALLISTIC MISSILE SUBMARINES (ONE-THIRD NUCLEAR POWERED) AND 60 CRUISE MISSILE SUBMARINES (TWO-THIRDS NUCLEAR POWERED). THEY CARRY A TOTAL OF ALMOST 200 BALLISTIC MISSILES AND OVER 300 CRUISE MISSILES.

UNCLASSIFIED

3/4 023 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113527

ABSTRACT/EXTRACT--SEVERAL SIGNIFICANT WEAPONS ARE NOW JOINING THE SOVIET STRATEGIC ARSENAL. THE LAND BASED ICBM FORCE NOW INCLUDES ABOUT 25 OF THE SS-9 SCRAP MISSILES ALREADY INSTALLED AND ANOTHER 40 BEING DEPLOYED, ACCORDING TO U.S. INTELLIGENCE ESTIMATES. THE SS-9 IS KNOWN TO HAVE THE RANGE (CIRCA 5,000 MILES), A MIRV WARHEAD (THREE BOMBS), SUFFICIENT POWER (FIVE MEGATONS PER BOMB), AND THE ACCURACY NECESSARY FOR USE IN A PREEMPTIVE STRIKE AGAINST U.S. LAND BASED ICBMS. THE SOVIETS ARE INSTALLING SS-9 MISSILES AT AN INCREASED RATE OVER A YEAR AGO AND THE U.S. DEPARTMENT OF DEFENSE BELIEVES THAT BY 1973 SOVIET TECHNOLOGY COULD PROVIDE THE SS-9 WITH A FIVE-BOMB MIRV. SIMILAR ADVANCES ARE BEING MADE WITH SEA BASED MISSILES. THE SOVIET CRUISE MISSILE SUBMARINE FORCE NOW INCLUDES SOME 30 NUCLEAR POWERED E-2 CLASS SUBMARINES, EACH ARMED WITH EIGHT SHADDOCK MISSILES. THESE WEAPONS HAVE A RANGE OF ABOUT 400 NAUTICAL MILES AND, WITH THEIR NUCLEAR WARHEAD, CAN BE USED AGAINST NAVAL OR LAND TARGETS. A NEW TYPE OF CRUISE MISSILE SUBMARINE DESIGNATED AS THE C-CLASS IS NOW AT SEA, WITH EACH SUBMARINE CARRYING EIGHT MISSILES, POSSIBLY OF AN IMPROVED CAPABILITY. BUT OF A GREAT DEAL MORE SIGNIFICANCE IS THE Y-CLASS OF BALLISTIC MISSILE SUBMARINES, SIMILAR TO THE POLARIS CRAFT OF WESTERN NAVIES. THESE SUBMARINES EACH HAVE 16 TUBES FOR A 1,300 TO 1,500 NAUTICAL MILE BALLISTIC MISSILE. ABOUT 12 OF THESE SUBMARINES HAVE BEEN BUILT AND RED SHIPYARDS ARE REPORTED TO BE BUILDING THESE CRAFT AT THE RATE OF FOUR TO EIGHT PER YEAR. OUTSIDE THE KREMLIN'S WALLS THERE CAN BE NO ACCURATE ESTIMATE OF HOW LARGE A STRATEGIC OFFENSIVE FORCE THE SOVIETS ARE BUILDING.

UNCLASSIFIED

4/4 023 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113527

ABSTRACT/EXTRACT--WILL THE SOVIETS BUILD AND DEPLOY A FORCE OF 41 Y-CLASS SUBMARINES, A NUMBER EQUAL TO THE POLARIS-POSEIDON SUBMARINE STRENGTH OF THE U.S. NAVY? OR WILL THE SOVIETS BUILD 50 OR 60 OR EVEN 100 OF THESE SUBMARINES? SIMILARLY, WILL THE SOVIETS INSTALL 500 SS-9 MISSILES (THREE TO FIVE BOMBS EACH) OR 1,000 SS-9S DURING THE 1970S?

UNCLASSIFIED

Acc. Nr.: AP0046496

Ref. Code: URC094

USSR

UDC 537.2:62-784.37

GEFTER, P. L., LEVANT, B. G., Engineers, and [redacted], Candidate of Technical Sciences, All-Union Scientific Research Institute for Chemical Fiber Processing

"Low-Frequency Neutralizer of Static Electricity Charges"

Moscow, Promyshlennaya Energetika (Industrial Power Engineering), No 1, 1970, pp 28-31

Translation: Descriptions are given of the construction, electric circuit and operating principle of a new commercial-type low-frequency neutralizer. The question of selection of optimum discharger design parameters is examined, and a method is given for calculating the required working supply voltage. (3 illustrations, 10 biblio. ref.)

Reel/Frame
19781749

USSR

UDC: 543.42

GRIKIT, I. A., POLONIK, V. V., GARASHCHENKO, V. P.

"The Rate of Electrical Erosion of Metals in Spectral Light Sources as a Function of the Physical Properties of the Metals"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 17, No 4, Oct 72, pp 585-591

Abstract: Electrical erosion of pure metals was studied in standard spectral light sources. The IG-3 and GEU-1 spark oscillators were used. The opposing electrodes were made of spectral carbon. The test specimens had a volume of about 1 cc. Each specimen was subjected to spark erosion with 8-12 spots, and weight loss was determined by weighing on an analytical balance before and after treatment. Each experiment was repeated three times, giving a mean square error of 20% in determination of erosion rate. The rate of erosion was analyzed as a function of the thermophysical and mechanical properties of the metals, the structure of the outer electron shells of the isolated atoms, and the packing density of the atoms in the crystal lattice. An attempt is made to relate the rate of electrical erosion to the strength of the interatomic bond in the crystal lattice of the metals in terms of the principal physical and chemical characteristics of the metals

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GRIKIT, I. A. et al., Zhurnal Prikladnoy Spektroskopii, Vol 17, No 4, Oct 72, pp 585-591

and the configurational model of the condensed state of matter. The pattern governing electrical erosion of metals is found to conform to the periodic law of the elements. This research confirms the specific capacity of electric discharges to selectively destroy metals and alloys, depending on the strength of their interatomic and chemical bonds.

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USSR

UDC 669.295.015.3:543.42

GRIKIT, I. A., GALUSHKO, Ye. G., POLONIK, V. V., OGNEV, P. K., KOLOMOYETS, G. G., and PEREVYAZKO, A. I.

"Spectral Determination of Oxygen in Hydrided Titanium Powders"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana, Metallurgiya Publishing House, Vol 6, 1970, pp 155-159

Translation: A description is given of the method, based on the principle of full dehydrogenation of briquetted suspended matter, which is analyzed, in an anode state of the direct current arc and exciting the hydrogen from the mixture of gases in an argon environment by the same discharge. Recording of the analytic lines H 6,562.85 Å/Ar 6,965.43 Å was done on an ISP-51 spectrograph with a chamber with a focusing distance of 270 mm on Infra-760 photoplates. Graduated charts for determining hydrogen were constructed on coordinates (Delta S; lg G). The reproducibility of results from spectral determination of hydrogen in hydrogenated titanium powders is characterized by a variation coefficient of 5-6% with a hydrogen concentration interval between 1.5 and 4%. Three illustrations, two tables, and one bibliographic entry.
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USSR

UDC: 621.375

KORCHENENKOVA, V. G., Engineer, KUZENKOV, V.V., Engineer, CHERNYSHEV, R. N., Engineer, POLONNIKOV, D. Ye., Doctor of Technical Sciences

"A Low-Current Measurement Amplifier"

Moscow, Pribory i Sistemy Upravleniya, No 4, Apr 72, pp 35-37

Abstract: An amplifier with temperature control is proposed for measuring currents of the order of 10^{-12}-10^{-14} A with a parametric input stage which appreciably simplifies circuitry, reduces overall dimensions and weight, and thus extends the range of application of these devices. A schematic diagram is presented and the operation of the device is described. The amplifier has a gain of the order of 10^6 with an output of 10 V at 10 mA. Drift is 30 μV/°C and input impedance is 10^{10} Ω.

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USSR UDC 8.74

POLONNIKOV, R. I., ALEKSANDROV, V. V.

"Some Methods of Isolating Informative Parameters and Their Application in Adaptive Devices"

V sb. Teoriya i primeneniye adaptivn. sistem (Theory and Application of Adaptive Systems -- collection of works), Alma-Ata, 1971, pp 223-250 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V667)

Translation: A study is made of the possibility of applying a universal system of standards in the form of simplex codes in recognition devices. It is demonstrated how by means of such standards an abbreviated description of the input data (sorting of the informative coordinates) and classification are carried out. A group training method is proposed which permits a highly significant decrease in the memory size of the recognition device. A study was made of some of the procedures for constructing complex attributes on the basis of applying the Adamar operators and simple logical operators. The means of technical implementation of such recognition devices having high speed and universality are noted. The bibliography has 23 entries.

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USSR

UDC: 8.74

POLONNIKOV, R. I.

"A High-Speed Recognition Algorithm"

V sb. Avtomat. upr. i regulir. v razlichn. otraslyakh nar. kh-va. Vyp. 1 (Automation of Control and Management in Various Sectors of the National Economy--collection of works. No 1), Kuybyshev, 1971, pp 165-172 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1077)

Translation: The author describes the principle of operation and the block diagram of a high-speed recognition automaton which contains adaptive matrix structures which can be used in recognition of up to eight classes of objects. One of the advantages of the described automaton is the possibility for breaking up a recognition problem of any complexity into a number of simpler alternative problems which can be solved in parallel. Another advantage of the automaton is the similarity of the structures comprising it, which minimizes the nomenclature for the functional modules and elements. For instance small and large instruction matrices as well as memory matrices can be assembled from adaptive elements based on a single miniature nine-aperture transfluxor. The corresponding

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USSR

POLONNIKOV, R. I., Avtomat. upr. i regulir. v razlichn. otraslyakh nar. kh-va, Kuybyshev, 1971, pp 165-172

schematic diagram for a teaching matrix is given. It is noted that an experiment was conducted on recognition of handwritten figures from 0 to 7. Figures written in different hands were magnified to a size of 9 x 12 [sic] (the size of an input photodiode matrix made up of 300 photodiodes). Instruction and selection of the information coordinates was carried out with respect to 15 instructional patterns for each class. The percentage of correct responses was determined with respect to 50 control patterns for each of the eight classes. In this connection, 7, 14, 21 and 28 information coordinates out of a total number of 300 were used. A corresponding table of recognition results is presented. V. Mikheyev.

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USSR UDC: 681.325.65

POLONNIKOV, R. I., ALEKSANDROV, V. V., PEREVOZCHIKOV, Yu. G.

"A Self-Adaptive Classifier"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 33, Soviet Patent No 285353, class 42, filed 28 Apr 69, published 29 Oct 70, pp 121-122

Translation: This Author's Certificate introduces: 1. A self-adaptive classifier which consists of a matrix of adaptive elements, a maximum detector, and a display circuit. As a distinguishing feature of the patent, the device is designed to simplify phase discrimination of the output signal. For this purpose, the adaptive elements are made in the form of nine-aperture transfluxors, and each of the channels for each row of the matrix contains a pulse-shifting circuit based on ferrite rings with rectangular hysteresis loop, the windings of these rings being connected in a common circuit with the output and readout windings of the transfluxors. 2. A modification of this classifier with the distinguishing feature that sensitivity is increased by using m identical channels in the maximum detector, each of these channels being comprised of a series circuit consisting of RC integrating networks and a three-stage DC voltage amplifier

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POLONNIKOV, R. I. et al., Soviet Patent No 285353

based on two PNP transistors and one NPN transistor. The emitter circuit of the transistor in each amplification stage is connected across a resistor which is common to the m channels.

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USSR

UDC 8.74

POLONNIKOV, R. I., ALEKSANDROV, V. V.

"Certain Methods of Selecting Informative Parameters and Their Application in Adaptive Devices"

V sb. Teoriya i primeneniye adaptivn. sistem (Theory and Application of Adaptive Systems -- Collection of Works), Alma-Ata, 1971, pp 223-250 (from RZh-Matematika, No 9, Sep 72, Abstract No 9V667)

Translation: The possibility of applying a universal system of standards in the form of simplex codes in recognition devices is discussed. It is shown that the description of input data (the gathering of informative coordinates) and classification can be shortened with the aid of such standards. A group method of teaching is proposed which would very considerably reduce the memory size of the recognition device. Certain methods are considered for constructing complex indicators on the basis of the application of Hadamard operators and simple logical operators. Ways for technically achieving suitable recognition devices having high speed and universality are mentioned. 23 ref. V. Mikheyev.

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USSR

UDC 632.95.028

VASIL'YEV, V. P., KOSMATYY, Ye. S., KUDEL', K. A., POLONSKAYA, F. I., and ZATSERKOVSKIY, V. A., Ukrainian Scientific Research Institute of Plant Protection

"Heptachlor Residues in Plants and Soil in Relation to the Application Method"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 3, 1972, pp 32-34

Abstract: No residue of heptachlor was found in the harvest of corn, wheat, or sugar beets, regardless of the method of application: pretreatment of the seeds, soil treatment, or spraying of the young plants. Depending on the method of application heptachlor residue was found for varying periods in the leaves and roots of the plants, but cleared rapidly and did not accumulate in soil.

USSR

UDC 551.508.7.08

CHEKANOV, A.A., and POLONSKAYA, S.L.

"Moisture Measuring of Contaminated High-Temperature Gases"

Tr. VNII Izpol'z. Gaza v Nar. Kh-ve i Podzem. Khraneniya Nefti, Nefteproduktov i Szhizh. Gazov /Works of the All-Union Scientific Research Institute of Gas Utilization in the National Economy and of Underground Storage of Petroleum, Petroleum Products, and Liquefied Gas/, 1971, Vol 5, pp 34-38 (from Referativnyy Zhurnal, No 4, Apr 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Abstract No 4.32.1089, by V.S. Krasnova)

Translation: The principle of operation is discussed and designs are presented of moisture meters (V) for measuring the moisture of dusty industrial gases of over 100°C temperature. For conducting continuous measurements, V of the VDK-1 type was designed in which the investigated gas passes through a condensation system, a thermocorrector, and a reducing system. after which it is discharged into air. The level of moisture developed in the condensation system is measured by a float rigidly connected with a core. The measuring results are recorded on a second device DSl-01, the scale of which is graduated in units of moisture. In the VDK-1 moisture meter a constant gas flow rate through the device is maintained with the help of the reduction system. Constructionally, the VDK-1 type consists of the block V of the VDK controller, a removable filter, and a second unit DSL-01. VDK-1 is a cyclic operation unit. The duration of the cycle is determined by the selected measuring range and realized by the cycle controller. On the end of each

USSR

CHEKANOV, A.A., et al, Tr. VNII Izpol'z. Gaza v Nar. Kh-ve i Podzem. Khraneniya Nefti, Nefteproduktov i Szhizh. Gazov, 1971, Vol 5, pp 34-38

cycle, the condensate is poured off and the chamber is scavenged. For measurements in points distant from each other, the moisture meter VP-1M was designed with a 10 min working cycle and a measurable timer mounted on the cover of V. The timer is synchronously connected with the upper cock which admits the gas into the unit, that is to say, it interlocks by cock opening and turns off by its shutting. On finishing the measuring and taking readings, the condensed water is poured off through the lower cock, after which the unit is ready for the next measurements. Technological characteristics of both V are presented. The relative measuring errors are 5%. Three illustr., two biblio. refs.

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P

USSR UDC 612.015.31:546.791]-088.1

SADIKOVA, N. M., POLONSKAYA, Ye. K., and GOLUTVINA, M. M.

"An Express Method for Determining Natural Uranium in Biological Substrates"

Moscow, Meditsinskaya Radiologiya, No 2, 1970, pp 65-69

Abstract: An express method for determining uranium in urine, that is specific, rapid, and simple, is proposed. It does not require the preliminary removal of interfering admixtures or other lengthy chemical procedures, thus reducing the amount of uranium lost in the course of analysis. The method is based on thermal destruction of small portions of urine (0.1-1 ml), fusing the residues with a fluoride mixture (NaF+LiF), and determining the intensity of fluorescence of the melt. Though slightly less sensitive than the extraction method, it is more or less equal to it in accuracy. The proposed method is also suitable for determining uranium in soft tissues and in feces.

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Acc. Nr: AP0034680

Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15, Nr 2, pp 65-69

Sadikova, N. M.; Polonskaya, Ye. K.; Golutvina, M. M.

Summary

The method of determining uranium in the urine is based on the thermic destruction of small quantities of the urine (1 ml), fusion of remnants with a fluoride mixture and evaluation of the activity of the alloy fluorescence. The sensitivity of the method is $3 \cdot 10^{-9}$ g/l of urine, the loss coefficient — 1.0 ± 0.15. The method is simple and therefore is suitable for serial investigations. The authors discuss the possibility of using direct instrumental method for determining the uranium content in the feces and tissues. The article gives the values of coefficients of losses, the sensitivity and accuracy of determination.

D.m.

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REEL/FRAME

19711385

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USSR

UDC 8.74

POLONSKIY, A. E., ALEKSEYEV, A. D.

"Information Language for Describing Concepts Contained in Technological Documents"

V sb. Prom. kibernetika (Industrial Cybernetics -- collection of works), Kiev, 1971, pp 202-204 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V604)

No abstract

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USSR

UDC 615.849.19.015:612.46

(4)

OGNEV, B. V., VISHNEVSKIY, A. A., Jr., TROITSKIY, R. A., POLONSKIY, A. K., VAL'TER, E. O., TIMIKHINA, N. I., KASSIN, V. Yu., and CHERKASOV, A. V.
Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR, Moscow

"Investigation of the Action of Gas Laser Rays on the Kidney Under Experimental Conditions"

Moscow, Urologiya i Nefrologiya, No 2, Mar/Apr 73, pp 33-36

Abstract: Laparotomy was performed under local anesthesia in rabbits, and the left kidney was transected with a focused impulsed neodymium laser beam. The transection was bloodless, and renal temperature rose to 42-48°C for a brief period. Penicillin was applied in the abdominal area, and the kidney and the abdomen were closed with sutures. During the uncomplicated postoperative month, the animals were sacrificed at intervals. Histological examination of renal tissue taken 1 hr after surgery revealed a wedge-shaped crater on the surface, 216 μ wide and 90 μ deep, from which cracks extended up to 110 μ deep into the renal cortex. The crater was covered with a homogeneous, foamy coagulate. The lesion was surrounded by a thin layer of necrotic tissue. In 1 day, the edges of the fibrous capsule were peeled off 500 μ from the center of the crater. The necrotic zone was 360 μ wide and 300 μ deep, and it was

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OGNEV, B. V., et al., Urologiya i Nefrologiya, No 2, Mar/Apr 73, pp 33-36

surrounded by an infiltrated layer separating it from healthy tissue. On subsequent days, the necrotic zone enlarged to a maximum of 900 μ, but no hemorrhages or suppurative inflammation developed. On the 10th day, the surface of the lesion was covered with a thin connective tissue capsule which gradually grew thicker. New capillaries formed in the parenchyma. On the 20th day, the lesion was filled with scar tissue whose thickness diminished to about 100 μ on the 30th day. The right kidney was free of pathology throughout the experimental period. Thus, transection of the kidney with laser is bloodless and causes strictly local morphological changes, leaving surrounding tissue intact. Organization of scar tissue is not completed in 30 days.

2/2

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UDC 8.74

POLONSKIY, A. M.

"Algorithms for Solutions of Certain Problems in Geophysics"

Algoritmy resheniy nekotorykh zadach geofiziki (cf. English above), Yerevan, Academy of Sciences Armenian SSR, 1971, 179 pp, ill., 1 r. 25 k. (from RZh-Matematika, No 5, May 72, Abstract No 5V539K by V. MIKHEYEV)

Translation: The work is devoted to a consideration of algorithms for processing geological and geophysical data in order to solve certain problems in geophysics. Section 1 of Chapter I sets forth a regularizing algorithm for analytic continuation into the space surrounding perturbing masses, up to a certain closed surface outside which there are no field sources. Section 2 considers an algorithm for analytic continuation of the anomaly observed on a curvilinear surface in the direction of the upper half-space unoccupied by perturbing masses. Section 3 gives some practical majorizing evaluations of the observed anomaly, which is the sum of the anomalies of different objects. Chapter II presents an algorithm for solution of the primal problem for bodies of arbitrary shape, polarized by an electric or magnetic field. In addition, an algorithm is presented for calculating the gravitational anomaly from a

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POLONSKIY, A. M., Algoritmy resheniy nekotorykh zadach geofiziki, 1971

body of arbitrary shape. Chapter III sets forth algorithms connected with solution of the question of estimating mineral reserves through the use of magnetic or gravitational exploration data. In an appendix programs for realization of the analytic continuation algorithms described are presented. Some of the programs are compiled for the M-20 electronic computer directly. Other programs are drawn up in "alpha language."

2/2

USSR

UDC: 8.74

POLONSKIY, A. M.

"Algorithms of Solutions of Some Problems in Geophysics"

Algoritmy resheniy nekotorykh zadach geofiziki (cf. English above), Yerevan, Academy of Sciences of the Armenian SSR, 1971, 179 pp, ill. 1 r. 25 k. (from RZh-Kibernetika, No 5, May 72, Abstract No 5V539 K)

Translation: The book is devoted to examination of algorithms of processing geological and geophysical data for solving certain problems in geophysics. Section 1 of chapter I presents a regularizing algorithm of analytical continuation into a space surrounding disturbing masses to a certain closed space outside of which there are no field sources. Section 2 considers an algorithm of analytical continuation of an anomaly observed on a curvilinear surface toward an upper half-space which is unoccupied by disturbing masses. Section 3 gives some practical estimates of upward conversion of an observed anomaly which is a sum of anomalies from different objects. Chapter II presents an algorithm of solution of a direct problem for bodies of arbitrary shape which are polarized by an electric or magnetic field. In addition, an algorithm is presented for calculating a gravi-

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POLONSKIY, A. M., Algoritmy resheniy nekotorykh zadach geofiziki, Yerevan, 1971

tational anomaly of a body of arbitrary shape. Chapter III presents algorithms related to solving the problem of evaluating the reserves of minerals in utilizing data of magnetic and gravimetric prospecting. An appendix presents programs for realizing the described algorithms of analytical continuation. Some of the programs are compiled directly for the "M-20" computer, while other programs are compiled in the Alpha language. V. Mikheyev.

2/2

USSR

UDC 621.317.715

PREOBRAZHENSKIY, A. A., BISHARD, YE. G., POLONSKIY, A. M., Leningrad Electrotechnical Institute imeni V. I. Ul'yanov

"Digital Ballistic Galvanometer"

Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol XIV, No 3, 1971, pp 17-20

Abstract: An integrator with code conversion of the magnitude of the magnetic flux to pulse number code is investigated. The device is based on a ballistic galvanometer with a photomask at the input of a special amplifier. It permits complete automation of the process of measuring magnetic induction with the results obtained in digital form: the ballistic kick of the galvanometer is converted to a proportional number of pulses by means of the three dimensional coding converter (photomask) on the instrument scale. Recommendations are made with respect to selecting the light sensitive transducer and the pulse amplifier, and experimentally calculated characteristics of the integrating device are presented.

The proposed device permits measurement of the magnetic induction with an error not exceeding the error from direct measurments by a ballistic

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PREOBRAZHENSKIY, A. A., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol XIV, No 3, 1971, pp 17-20

galvanometer. With automatic limit selection of 40 seconds the measurement time of the device is 10 seconds.

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Acc. Nr: AP0049054 Ref. Code: UR0357

PRIMARY SOURCE: Vestnik Oftal'mologii, 1970, Nr 1, pp 89-90

TWO CASES OF CHOROIDEREMIA

N. P. Dachevskaya, B. Z. Polonskiy

Summary

The world literature sources cited about 40 case-reports of this affection. The authors describe 2 such cases they had to deal with. Both patients presented symptoms typical of choroideremia, such as night blindness, reduced central vision and narrowing of vision fields. Ophthalmoscopy showed the absence of choroid over a large extent of the eye fundus, it being preserved in the foveola and in islets along the periphery. In addition to this one of the patients was deaf and mute and presented positive complement fixation and intradermal tests for toxoplasmosis. Quite unusual was also combination of choroideremia and hypermetropic refraction, conspicuous in this case. General tonics, vitamin therapy and biogenic stimulators proved ineffective.

1/1 2

USSR UDC 621.357.8:669.725(088.8)

VOL'FSON, A. I., UMOV, V. S., POLONSKIY, E. I., MARKOVA, N. Ye., CHERNYSHOV, V. V., LEBEDEV, V. N.

"Method of Anodization of Beryllium and Its Alloys"

USSR Author's Certificate No 305210, Filed 5/02/70, Published 13/07/71, (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 L241 P from the Resume).

Translation: A method of anodization of beryllium and its alloys in an electrolyte containing H_3BO_3, differing in that in order to increase the corrosion resistance of the film, ethylene glycol and ammonia are introduced to the electrolyte in the following relationship (g/l): ethylene glycol 50-150, H_3BO_3 30-160, 25% ammonia solution, ml 40-100, and the process is conducted at 10-40°, D_c 0.2-2 a/dm^2.

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USSR UDC 62.762.8:627.845.004.69

POLONSKIY, G. A., Engineer

"Basic Trends in Improvement of the Seals of Gates in Water Engineering Structures"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 3, Mar 1973, pp 15-23.

Abstract: In recent years, considerable work has been performed on the development of new types of sealing devices, which can operate with water heads of up to 120 m. The use of deep, segmented gates at the Charvakskaya Hydroelectric Power Plant for 2 years has confirmed the good operation of a deformation-hydraulic controlled-action sealing device. The operation of the deformation seal has been well studied under laboratory conditions, and these seals are called for at the Nurek Hydroelectric Power Plant. For high-pressure seals, operating with heads of 150 m and more, work must be continued on the creation of new types of sealing devices. An extensive table is presented, with cross-sectional diagrams of various types of seals, the maximum head at which they can operate, maximum clearance covered, point of installation and recommendations for use.

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USSR UDC 627.844:627.757.621.311.21(282.255)

POLONSKIY, G. A., engineer

"Construction of Penstocks for Charvakskaya GES"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 1, January 1971, pp 6-11

Abstract: The construction of the world's largest penstocks for Charvakskaya GES is described. The maximum dynamic head at the downstream end is 191 meter. The design flow is 300 cubic meter per second. The inside diameter of these penstocks is 9.0 meters, the wall thickness is 20-45 millimeters. The fabrication is performed in three phases: the plates are rolled and edges prepared for welds at the plant; complete rings are fabricated at the site weld shop; the rings are set in design position and welded together. They slide the rings to their design positions inside the tunnel on accurately laid widely spaced rails. Automatic welding is used at the weld shop. Manual welding is used to connect the rings together inside the tunnel. Some of these joints were welded from the inside only, using outer back-up rings. All welds were inspected ultrasonically and by X-ray. The parts of the elbows and bifurcations were fitted together at the plant prior to shipping.

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1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--RECOMMENDATIONS FOR ELECTROMAGNETIC SHIELDING OF PREMISES -U-

AUTHOR-(02)-CHEKHOVICH, V.V., POLONSKIY, N.S.

COUNTRY OF INFO--USSR

SOURCE--(CERN TRANS 69-21) 147P. DEP. CFSTI

DATE PUBLISHED--------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--ELECTROMAGNETIC SHIELDING, INDUSTRY, SCIENTIFIC INSTITUTE, MEDICAL FACILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1911 STEP NO--UR/0000/70/000/000/0001/0147

CIRC ACCESSION NO--AT0127312
UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0127312

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SHIELDED PREMISES AND ROOMS HAVE A LARGE UTILIZATION IN INDUSTRY, SCIENTIFC INSTITUTES, MEDICAL CENTERS, ET. IN THE MAJORITY OF THESE CASES, THE PREMISES AND ROOMS ARE DEVELOPED BY THE INSTITUTE ITSELF, AS AT THE PRESENT HERE IS NO UNIFIED PROJECT OF RECOMMENDATIONS AND CONSTRUCTIONS OF ELEMENT TYPES. THE PRESENT RECOMMENDATION HAS THE PURPOSE OF CONTRIBUTING A TECHNICAL AID IN THE CHOICE, SELECTION, AND MOUNTING OF SHIELDED PREMISES AND ROOMS, DESIGNED TO GIVE A SHIELDING EFFICIENCY OF THE ORDER OF 80 TO 100 DB AND 40 TO 60 DB IN THE FREQUENCY RANGE FROM 0.15 TO 1000 MHZ AND A SHIELDING EFFICIENCY OF 80 TO 100 DB IN THE RANGE FROM 0.15 TO 150 MHZ. QUESTIONS ON THE APPLICATION OF SHIELDED PREMISES AND ROOMS, THEIR CONSTRUCTION, THE FILTERING OF THE ELECTRIC NET, AND THE REPORT OF METHODS OF VERIFICATION OF THE SHIELDING EFFICIENCY OF THE PREMISES AND OF THE FILTER PARAMETERS ARE GIVEN. A GROUP OF CONTRACTORS HAVE PARTICIPATED IN THE DEVELOPMENT OF THE ELEMENTS OF SHIELDED PREMISES AND ROOMS. THE PRINCIPAL ELEMENTS DESCRIBED IN THEIR RECOMMENDATIONS ARE USED IN PRACTICE AND HAVE BEEN TESTED FOR THEIR FLEXIBILITY AND EASE OF USE.

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USSR UDC 669.71.053.24(088.8)

KHITRIK, S. I., GASIK, M. I., VUKOLOV, YE. A., KLEKOVICH, N. A., PORADA, A. N., LAGUNOV, YU. V., POLONSKIY, S. M., IORDANOVA, Z. A., MALYSHEV, V. I., YEMLIN, B. I., KASHKUL', V. V., MASHKOV, V. P. TSEYMAKH, N. L., YEM, A. P., CHERNYSH, F. I., and KOLNOGUZENKO, V. A., Dnepropetrovsk Metallurgical Institute

"Method of Smelting Abrasive Electrolytically Produced Corundum"

USSR Author's Certificate No 263635, filed 15 Oct 65, published 10 Jun 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G101 P)

Translation: A method is proposed for smelting abrasive electrolytically produced corundum in a thermal furnace which involves deep fusion of alumina-containing charge with reducing agents. To increase the abrasive properties of corundum and to obtain in it a Ti oxide content of $\leq$ 1%, smelting is carried out on kaolin presintered with Fe-ore additive or scale in the amount of 20-30 wt % of the charge.

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1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--TEMPERATURE CONSTANCY IN THE MOLECULAR CO LAYER OF THE SOLAR ATMOSPHERE -U-

AUTHOR-(02)-SITNIK, F.G., POLONSKIY, V.V.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 516-619

DATE PUBLISHED-------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--SOLAR ATMOSPHERE, CARBON MONOXIDE, MOLECULE, SPECTRAL LINE, SPECTROGRAPH, TEMPERATURE, TELESCOPE/(U)ATBI TOWER TELESCOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/B11 STEP NO--UR/0033/70/047/003/0516/0519

CIRC ACCESSION NO--AP0140254

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 030

CIRC ACCESSION NO--AP0140254

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATION OF THE EQUIVALENT SPECTRAL LINE WIDTHS IN THE SOLAR ATMOSPHERE FROM SPECTROGRAMS OF CARBON MONOXIDE MOLECULES TAKEN IN 1964 AND 1965 ON A SOLAR ATB 1 TOWER TELESCOPE. THE TEMPERATURE OF A THIN LAYER OF CARBON MONOXIDE MOLECULES PRESENT IN THE SOLAR PHOTOSPHERE IS FOUND TO BE CONSTANT WITHIN THE ACCURACY OF THE MEASUREMENT OF THE RATIO BETWEEN THE EQUIVALENT LINE WIDTHS. THIS TEMPERATURE IS ESTIMATED TO BE 4920 PLUS OR MINUS 290 K.

FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--METHOD FOR ANALYSIS OF QUANTITATIVE INDICES IN CYTOLOGY -U-

AUTHOR-(02)-KATINAS, G.S., POLONSKIY, YU.Z.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 12(3): 399-403, ILLUS. 1970

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CYTOLOGY, INDEX, QUANTITATIVE ANALYSIS, MATHEMATIC METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0287 STEP NO--UR/9053/70/012/003/0399/0403

CIRC ACCESSION NO--AP0134092
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 012

CIRC ACCESSION NO--AP0134092

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DERIVATION OF FORMULAS FOR DETERMINING THE STANDARD ERROR OF THE ARITHMETICAL MEAN UNDER THE NORMAL AND POISSON'S DISTRIBUTION OF VARIANTS IS GIVEN. THE ANALYSIS OF FORMULAS SUGGESTS THAT THE VALUE OF THE ARITHMETICAL MEAN CANNOT BE IMPROVED BY INCREASING THE NUMBER OF OBSERVATIONS ONLY, WITHIN THE LIMITS OF EACH ORGANISM. THE VALUE CAN BE IMPROVED, HOWEVER, BY INCREASING THE NUMBER OF ORGANISMS INVESTIGATED. FACILITY: INST. EXP. MED., ACAD. MED. SCI. USSR, LENINGRAD, USSR.

UNCLASSIFIED

POLOSATOV, M.V.

BIBLIOGRAPHIC DATA

1. Report No. JPRS 59689

4. Title and Subtitle: EFFECTS OF THE EXTREME FACTORS OF ANTARCTICA ON SLEEP OF POLAR EXPEDITION MEMBERS

5. Report Date: 2 August 1973

7. Author(s): M. V. Polosatov

8. Performing Organization Rept. No.

9. Performing Organization Name and Address: Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201

10. Project/Task/Work Unit No.

11. Contract/Grant No.

12. Sponsoring Organization Name and Address: As above

13. Type of Report & Period Covered

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15. Supplementary Notes: BYULLETEN' SOVETSKOY ANTARKTICHESKOY EKSPEDITSII, No 86, 1973, Moscow

16. Abstracts: The report contains a discussion of the effects of extreme conditions of the polar region upon the sleep of expedition members.

17. Key Words and Document Analysis. 17a. Descriptors: USSR, Biological and Medical Sciences, Environmental Biology

17b. Identifiers/Open-Ended Terms:

17c. COSATI Field/Group: 06F

18. Availability Statement: Unlimited Availability, Sold by NTIS, Springfield, Virginia 22151

19. Security Class (This Report): UNCLASSIFIED

20. Security Class (This Page): UNCLASSIFIED

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USCOMM-DC 14952-P72

JPRS 59689

2 August 1973

EFFECTS OF THE EXTREME FACTORS OF ANTARCTICA ON SLEEP OF POLAR EXPEDITION MEMBERS

[Article by M.V. Polonatov, Institute of Experimental Medicine, USSR Academy of Medical Sciences; Moscow, Byulleten' Sovetskoy Antarkticheskoy Expeditsii, Russian, No 86, 1973, pp 69-74]

The circadian rhythm of vital functions of the human organism, and especially alternation of periods of activity and sleep, is greatly related to the customary physicogeographic environment. When more people move to the rigorous climate of polar regions their sleep is impaired and, in particular, so-called "polar insomnia" [3-6, 8] develops. In some polar residents, the sleep disorders are relatively stable and are observed without substantial normalization throughout the expedition period [2, 6]. Changes in customary light conditions and psychoneurological status which develop under the influence of the extreme factors in polar regions [1; 2; 6] play the most important part in the dynamics of sleep disorders among members of polar expeditions.

Our task was to analyze the effect on sleep not only of factors to which the entire organism is exposed (sharp change in life style — customary living stereotype, social environment; specific climate factors — rigorous climate, hurricane winds; change in light conditions; physical factors — electromagnetic phenomena, ionizing radiation), but also of factors that are specific for individual occupational groups depending, to varying extents, on the effects of rigorous natural conditions of Antarctica, informational and sensory deficiency, information overloads. It was also of some interest to determine the correlation between the nature of sleep disturbances and living conditions (above or below the snow) and psychological type of personality.

The questionnaire method was used to survey 48 polar expedition members at the Mirnyy observatory. The four groups consisted of radio operators, geophysicists, aerologists, and drivers. A special schedule was followed for monthly interrogation throughout the period of their stay (January 1970 — December 1970). The relative frequency of sleep disturbance symptoms was rated on a three-point scale (0 — no symptom,

-- single manifestation of symptom, 2 -- repeated manifestation of symptom, and 3 -- continuous manifestation of symptom). The Ayzenk test was used to determine the psychological personality type.

The investigations revealed that sleep disorder symptoms were present throughout the stay in Antarctica (figure 1). The highest percentage of disorders was recorded during the second half of the stay. The maximum level of sleep disorders coincided with the period of Antarctic night (June and July), hurricane winds, low outdoor temperatures which caused marked restriction of motor activity of virtually all of the observatory staff (according to the results of time studies, most expedition members spend an average of 21 hours per day indoors [7]). With advent of Antarctic spring when lighting conditions approximate the customary ones there is a tendency toward normalization of sleep, however, the percentage of disorders remained higher to the end of the stay than during the initial period (see figure 1). The most frequent complaints were difficulty in falling asleep, shallow and interrupted sleep, and during polar night increased drowsiness (see below):

Insomnia	2.9%
Shallow, intermittent sleep	24.4
Difficulty in falling asleep	30.3
Early waking	6.3
Difficulty in waking	18.0
Increased drowsiness	18.1
total	100

Figure 1. Dynamics of sleep disorders (1) and frequency of dreams (2) among expedition members at Mirnyy observatory in 1970 (January -- December) (percentages of mean annual levels)

In addition to increased frequency of sleep disorders there was a visible increase in frequency of dreams (see figure 1). The greatest share

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHANGES IN THE INTERNAL ORGANS AND ENDOCRINE GLANDS IN SOME CHRONIC NERVOUS DISEASES WITH MOTOR INVOLVEMENT -U-

AUTHOR--POLOSIN, YU.P.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNUYE DELO, 1970, NR 6, PP 101-104

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GLAND, ENDOCRINE SYSTEM, HISTOLOGY, LIVER, KIDNEY, HEART, NERVOUS SYSTEM DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1754 STEP NO--UR/0475/70/000/006/0101/0104

CIRC ACCESSION NO--AP0129122
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129122

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HISTOLOGICAL STUDIES WERE CARRIED OUT OF THE INTERNAL ORGANS AND MAIN ENDOCRINE GLANDS IN 6 CASES OF AMYOTROPHIC LATERAL SCLEROSIS, ONE CASE OF SUBACUTE ANTERIOR POLIOMYELITIS AND ONE CASE OF PROGRESSIVE BULBAR PARALYSIS. THE CHANGES REVEALED WERE UNIFORM: VENOUS CONGESTION, THICKENING OF ARTERIAL WALLS, STROMA SCLEROSIS. LESIONS OF THE PARYNCHYMA ELEMENTS WERE FOUND MAINLY IN THE LIVER, KIDNEYS AND HEART. ALL CHANGES REVEALED WERE MINOR OR MODERATE. THEIR NON SPECIFICITY AND SECONDARY ORIGIN IS EMPHASIZED. LITERARY DATA ON THE ENDOCRINE METABOLIC GENESIS OF PROGRESSIVE BULBO SPINAL AMYOTROPHIES AND SUGGESTIONS ON THE PRIMARY INVOLVEMENT OF THE LIVER IN THESE DISEASES COULD NOT BE CONFIRMED IN THIS STUDY. FACILITY: KAFEDRA NERVNYKH BOLEZNEY IVANOVSKOGO MEDITSINSKOGO INSTITUTA.

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USSR

UDC 669.14.018.44:620.178.382

POLOSKIN, YU. V., and MAKAROVSKIY, N. L.

"Effect of Temperature on the Work Hardening of Parts Made of Heat-Resistant Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, May 73, pp 56-59

Abstract: The effect of high temperatures of short duration on the relaxation of residual stresses in alloys KhN77TYuR, EI929, and ZhS6K is investigated. Strength tests established that the effectiveness of work hardening by surface plastic flow decreases with an increase in the test temperature, and at 900°C work hardening does not result in increased plastic flow. Decreased effectiveness of heat-resistant work-hardened alloy parts is due to relaxation of favorable residual compressive stresses and changes in the surface layer. The results of experimental investigations of relaxation of residual stresses agree with data obtained after strength testing.

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UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--MASS SPECTROMETRIC INVESTIGATIONS OF IONIC AND NEUTRAL COMPOSITION OF THE UPPER ATMOSPHERE BY MEANS OF MR12 ROCKETS -U-

AUTHOR--ZHLUDKO, A.D., POLOSKOV, S.M., POKHUNKOV, A.A., TESLENKO, V.P., SHIDLOVSKIY, A.A.

COUNTRY OF INFO--USSR

28
5
33

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 3, PP 72-82

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, MISSILE TECHNOLOGY

TOPIC TAGS--MASS SPECTROMETER, UPPER ATMOSPHERE, METEOROLOGIC ROCKET, GAS COMPOSITION ANALYZER/(U)MR12 METEOROLOGIC ROCKET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1977/0162 STEP NO--UR/0050/70/000/003/0072/0082

CIRC ACCESSION NO--AP0043756

UNCLASSIFIED

Acc. Nr: AP0043756 Ref. Code: UR 0050

PRIMARY SOURCE: Meteorologiya i Gidrologiya, 1970, Nr 3, pp 77-82

MASS-SPECTROMETRIC INVESTIGATIONS OF IONIC AND NEUTRAL COMPOSITION OF THE UPPER ATMOSPHERE BY MEANS OF MR-12 ROCKETS

A. D. Zhudko, S. M. Poloskov, A. A. Pokhunkov, V. P. Teslenko,
Shidlovskiy, A. A.; Ivanov, Yu. F.

Some research technique problems of gas composition of the Earth's upper atmosphere are considered, results of the investigation of the neutral and ionic composition at the heights of 100—180 km are given.

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REEL/FRAME 19770162

Acc. Nr. A70103019 Abstracting Service: 6-70 Ref. Code: 4R 0020
INTERNAT. AEROSPACE ABST.

A70-25397 # **Estimation of the structure of the solar corona from a rocket experiment on February 15, 1961 (Otsenka struktury solnechnoi korony po raketnomu eksperimentu 15 II 1961 g.).** A. A. Dmitriev, R. G. Indzhgia, A. E. Mikirov, and S. M. Polskov (Moskovskii Gosudarstvennyi Universitet, Moscow, USSR). *Akademiia Nauk SSSR, Doklady*, vol. 190, Feb. 1, 1970, p. 803, 804. In Russian.

Determination of the brightness distribution in the outer solar corona from information obtained by rockets equipped with scanning devices during a solar eclipse. The problem of determining the true brightness from an integral equation giving the relation between the experimentally observed brightness and the true brightness is considered. It is found that, starting from a measurement error of 9.5%, the reconstructed function does not have any negative roots, thus reliably indicating that the error in the initial data is no less than 9.5%.

A.B.K.

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CK 12

REEL/FRAME
19861101

USSR

UDC: 51:621.391

BIYASHEV, R. G., POLOSUKHIN, B. M.

"Using Nonpositional Polynomial Coding Over Galois Fields for Checking During Storage or Transmission of Information"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Collected Scientific Works on Problems of Microelectronics. Moscow Institute of Electronic Technology), 1972, vyp. 9. (Physics and Mathematics Series), pp 217-222 (from RZh--Kibernetika, No 10, Oct 72, abstract No 10V454)

[No abstract]

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1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--AN UNIMPROVABLE ESTIMATE FOR A MULTIDIMENSIONAL TRIGONOMETRIC SUM WITH EXPONENTIAL FUNCTIONS -U-
AUTHOR--POLOSUYEV, A.M.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK MOSKOVSKOGO UNIVERSITETA, MATEMATIKA, MEKHANIKA, 1970, NR 1, PP 9-16
DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--SERIES, TRIGONOMETRY, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0527 STEP NO--UR/0055/70/000/001/0009/0016

CIRC ACCESSION NO--AP0117761

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0117761

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THIS PAPER REAL NUMBERS A SUB1,..., A SUBS ARE CONSTRUCTED SUCH THAT THE TRIGONOMETRIC SUM SUMMATION P OVER X EQUALS 1 EXP (2PII SUMMATION S OVER J EQUALS 1 M SUBJ A SUBJ Q PRIMEX SUBJ), WHERE Q SUBJ IS GREATER THAN OR EQUAL TO 2, M SUBJ ARE INTEGERS AND SUMMATION S OVER J EQUALS 1 M PRIME2 SUBJ IS NOT EQUAL TO 0, HAS AN UNIMPROVABLE ESTIMATE. THIS RESULT IS BASED ON THE POSSIBILITY OF CALCULATING THE SUM SUMMATION TAU OVER X EQUALS 1 EXP 2PII AQ PRIMEX OVER M, WHERE Q IS GREATER THAN OR EQUAL TO 2 IS AN INTEGER, (Q, M) EQUALS 1, (A, M) EQUALS 1, TAU IS THE PERIOD OF THE FUNCTION Q PRIMEX (MOD M). THE LATTER SUM WAS CONSIDERED BY N. M. KOROBOV (UNIMPROVABLE ESTIMATES FOR TRIGONOMETRIC SUMS WITH EXPONENTIAL FUNCTIONS. DOKLADY AN SSSR, 1953, VOL. 89, NO. 4, PP. 597-600).

UNCLASSIFIED

Transformation and Structure

UDC 542.65:532.526.7

USSR

KOLESNICHENKO, L. F., and POLOTAY, V. U., Institute for Problems of Material Science, Academy of Sciences UkrSSR

"Directional Crystallization of Alloys as a Method for Obtaining Structures With High Resistance to Wear"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 70, pp 62-67

Abstract: The most widely accepted methods of raising the wear resistance of materials are based on the use on various kinds of thermochemical treatment involving the possibility of thermal diffusion saturation of the surface with one or more elements or coating the surface with other metals. The wear resistance of materials subjected to such thermochemical treatment increases several times and makes the materials suitable for service in moving precision joints where the load is uniformly distributed and maximum coupling geometry is imperative. The logical outcome of earlier research is the need of a surface modification technology which would provide the presence of a structure with individual crystals packed in a certain direction with respect to the working surface. The method of thermochemical treatment proposed here involves heating the coated surface to fusion temperature and cooling it with directional

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USSR

KOLESNICHENKO, L. F., and POLOTAY, V. U., Poroshkovaya Metallurgiya, No 7, Jul 70, pp 62-67

heat dissipation, producing in the surface layer self-ordered fibrous structures which raise resistance to wear. The effect of the shape and orientation of the structure on the wear resistance of the modified material was studied on specimens with globular inclusions of borides, filamentary boride crystals arranged in perpendicular to the friction surface. The specimens were subjected to low-temperature treatment and friction machine testing at dry contact in air at a rate of 1 m/sec and at variable pressure. The wear resistance in these specimens was found to be higher than in materials with globular boride inclusions and filamentary boride crystals arranged in parallel to the friction surface.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--WEAR RESISTANCE OF SINTERED METAL CONSTRUCTION MATERIALS SUBJECTED TO DRY FRICTION -U-

AUTHOR-(04)-TITARENKO, S.V., ARAKELYAN, N.A., RADOMYSELSKIY, I.D., POLOTAY, V.V.

COUNTRY OF INFO--USSR

SOURCE--POROSHKOVAYA MET., FEB. 1970, (2), 80-84

DATE PUBLISHED----FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHROMIUM STEEL, WEAR RESISTANT SINTERED ALLOY, BALL BEARING STEEL, ANTIFRICTION MATERIAL, CARBON STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0123 STEP NO--UR/0226/70/000/002/0080/0084

CIRC ACCESSION NO--AP0123895

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123895

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FRICTION AND WEAR CHARACTERISTICS OF A NUMBER OF CR AND C STEEL SINTERED PARTS WERE STUDIED AND COMPARED WITH THE CORRESPONDING CHARACTERISTICS OF CONVENTIONAL BALL BEARING STEEL PARED WITH A HIGH SPEED CUTTING STEEL UNDER CONDITIONS OF DRY FRICTION. THE COEFF. OF FRICTION FELL AND THE WEAR INCREASED WITH INCREASING SLIP VELOCITY IN EVERY CASE; HOWEVER, THE SINTERED CR STEEL YIELDED THE HIGHEST DEGREE OF WEAR RESISTANCE. UP TO A CERTAIN LIMIT, THE ANTI FRICTION PROPERTIES OF THE SINTERED STEELS INCREASED WITH INCREASING C CONTENT.

UNCLASSIFIED

USSR

UDC 546.78+541.452+546.212

CHUVAYEV, V. F., SHINIK, G. M., POLOTEBNOVA, N. A., SPITSYN, V. I., Academician, Institute of Chemical Physics, Soviet Academy of Sciences, Moscow

"Investigation of Crystal Hydrates of Phosphotungstovanadic Heteropoly Acids by the Paramagnetic Resonance Method"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 27 Jul 73, pp 614-616

Abstract: The paper gives the results of an investigation of the PMR spectra of hydrates of various water content of phosphotungstovanadic heteropoly acids with one or two atoms of vanadium in the anion $H_4[PW_{11}VO_{40}]\cdot nH_2O$ and $H_5[PW_{10}V_2O_{40}]\cdot nH_2O$. Specimens of acids with intermediate water content were produced by allowing the initial high-water crystals to stand in air for different durations at different temperatures. The PMR spectra show specific peculiarities of the hydrate structure of phosphotungstovanadic heteropoly acids with one and two vanadium atoms. The nature of dehydration of the H^+ ions in acid $H_5[PW_{10}V_2O_{40}]\cdot H_2O$ supports the hypothesis of formation of a four-spin grouping H_4O^{2+}. In the hydrates $H_4[PW_{11}VO_{40}]\cdot H_2O$ and $H_5[PW_{10}V_2O_{40}]2H_2O$ the proton-proton distance of the water molecules r_{H-H}= 1.8 Å is considerably greater than the usual distances in crystal hydrates.

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1/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--POLAROGRAPHIC DETERMINATION OF TUNGSTEN IN STEELS -U-

AUTHOR-(02)-POLOTEBNOVA, N.A., DANILINA, L.M.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 261-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--TUNGSTEN STEEL, POLAROGRAPHIC ANALYSIS, METAL CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0431 STEP NO--UR/0032/70/036/003/0261/0263

CIRC ACCESSION NO--AP0126184
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126184

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO PREP. THE CALIBRATION CURVE, TO ALIQUOTS OF STD. NA SUB2 WO SUB4 SOLN. (2 MG W-ML), ADD 2 ML 1PERCENT NAVO SUB3 AND 0.5 ML H SUB3 PO SUB4. DIL. WITH H SUB2 O TO 5 ML AND HEAT TO BOILING. AFTER 20 MIN ADD 5 ML 1:4 H SUB2 SO SUB4 AND EXT. TWICE WITH 10 ML AMYL ALC. ADD 0.7 ML OF H SUB2 SO SUB4 TO THE CONBINED EXTS. AND DIL. TO 25 ML WITH AMYL ALC. DEAERATE 10 ML OF THIS SOLN. WITH H FOR 30 MIN AND SCAN THE POLARCGRAPHIC WAVE (E SUBONE HALF EQUALS MINUS 0.52 V VS. SCE) DISSOLVE 0.2-0.3 G OF STEEL CONTG. 6-10PERCENT W IN 5 ML H SUB2 SO SUB4 (1:4), 3 ML H SUB3 PO SUB4, AND 3 ML HNO SUB3. HEAT TO COMPLETE EVAPN. OF SO SUB3. COOL AND DIL. TO 25 ML WITH H SUB2 O. TO 5 ML OF THIS SOLN., ADD 2 ML NAVO SUB3 SOLN. AND HEAT TO BOILING. LEAVE STAND FOR 20 MIN, THEN EXT. WITH AMYL ALC. AS DESCRIBED ABOVE. DISSOLVE 0.4-0.5 G OF STEEL CONTG. 2-3PERCENT W IN 20 ML 1:4 H SUB2 SO SUB4, 3 ML H SUB3 PO SUB4, AND 3 ML HNO SUB3. PROCEED AS DESCRIBED ABOVE. THE ERROR IS 3.3PERCENT; THE ANAL. TAKES 1.5-2 HR.

FACILITY: KISHINEV. GOS. UNIV., KISHINEV, USSR.

UNCLASSIFIED

Recorders and Transducers

UDC 534.232.082.73

USSR

POLOTNYAGIN, V.A., SHEVCHIK, V.N.

"Concerning A Theory Of The Excitation Of Elastic Microwaves By Multiple Film Transducers (Taking Account Of The Effect Of Metallic And Dielectric Layers)"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1260-1268

Abstract: The operation is analyzed of a microwave transducer in the form of piezoelectric films enclosed between two metallic layers (electrodes). Attention is given to the acoustic load of the transducer and to a thin-film transducer loaded from two two sides by acoustic lines. Expressions are obtained which make it possible to take account of the effect of the metal and dielectric layers on the frequency properties of a film transducer. The possibility is shown of increasing the effectiveness because of the elastic resonance in the supplementary passive layers. 5 fig. 8 ref. Received by editors, 21 April 1971.

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USSR

UDC: 534.232.082.73--416

ZYURYUKIN, Yu. A., NAYANOV, V. I., and POLOTNYAGIN, V.A.

"Excitation of Hypersonic Waves by Piezoelectric Converters"

Moscow, Radiotekhnika i Elektronika, No. 5, 1970, pp 1059-1067

Abstract: This article is a continuation of an earlier one published by the authors named above in this same journal (1970, vol. 15, No. 4, p 797). The present article is an analysis in support of the method proposed in the earlier article with regard to piezoelectric thin film converters applied directly or through a fine metallic sublayer to a sonic conductor. The converters are sources of acoustical waves of the first and second type. Because of its simplicity, the method of partial regions of solution of the electromagnetic equations is used; however, the problem can be solved also by the equivalent circuit method as well as by the theory of cavity resonator excitation. In addition to their own method, the authors develop the equivalent circuit and the elec-

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USSR

ZYURYUKIN, Yu. A., et al, Radiotekhnika i Elektronika, No. 5, 1970, pp 1059-1067

trodynamic methods. The results of these methods are compared. And finally, general formulas are obtained for analyzing the reverse transformation and determining optimal conditions.

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USSR

UDC 538.662.14

YEFIMOVA, T. V., POLOTNYUK, V. V., and SHMATKO, O. A.

"Investigation of the Decomposition of Supersatured Solid Solutions of Tungsten in Cobalt by the Thermomagnetic Method"

Kiev, Metallofizika, No 32, 1970, pp 56-59

Translation: Cobalt alloys with 3.58, 5.22, and 13 at.% tungsten were investigated by the thermomagnetic method. The concentration dependence of the Curie point of the alloys studied was constructed. It was shown that in an alloy with 13 at.% tungsten tempered at 700° C two Curie points were observed. The transformed volume of the alloy tempered at 700° C for 3,5 hours and tungsten concentration in the separation stage were calculated according to thermomagnetic curves.

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USSR

UDC 539.4.019.3:669.24

POLOTSKIY, I. G., BELOSTOTSKIY, V. F., and KASHEVSKAYA, O. N., Kiev

"Effect of Ultrasonic Irradiation on the Microhardness of Nickel Single Crystals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 71, pp 152-155

Abstract: A study was made of the effect of ultrasonic irradiation on the microhardness of nickel single crystals in relation to the magnitude of strain and irradiation time, and of the thermal stability of the strengthened nickel. Single crystals of nickel were grown by the Chokhral'skiy method in which nickel of 99.95% purity was used. The crystals were cut into flat plates and vacuum annealed at 1050°C to remove internal stresses. Irradiation was done on a unit developed by G. YA. BAZELYUK. Change in microhardness ($\Delta H/H$) to strain ranged from a hardness of zero for 0 to 2 microns strains up to approximately 68 for a strain of 25 microns, where the curve levels off. It was noted that the greater the amount of strain the more rapid the strengthening and achieving of maximum microhardness. Also the thermal stability of strengthened nickel single crystals, as a result of ultrasonic irradiation, is better than after deformation by rolling. Four figures, 11 bibliographic references.

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USSR

UDC 669.71:539.375

BAZELYUK, G. YA., KOZYRSKIY, G. YA., PETRUNIN, G. A., and POLOTSKIY, I. G., Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Effect of Preliminary Ultrasonic Irradiation and Thermomechanical Treatment on Creep Strength of Aluminum"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul-Aug 71, pp 145-151

Abstract: In metals with a low stacking fault energy the weakening of these metals is due to recrystallization while metals with a high stacking fault energy are weakened primarily be means of polygonization. In conjunction with this there was much interest in studying the effect of preliminary ultrasonic irradiation and thermomechanical treatment on the creep strength of metals with a high stacking fault energy so that the authors selected 99.99% pure aluminum which has a stacking fault energy five times greater 200 erg.cm^{-2} than copper. Samples measuring 5 mm in diameter and 50 mm long were vacuum annealed at 500°C for one hour, after which part of the samples were creep tested while the others were either irradiated by ultrasound for 0.5 to 6.5 minutes or subjected to plastic deformation at the rate of 0.4% min for a range of from 0.5 to 11%. Prior to testing for creep the samples

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USSR

BAZELYUK, G. YA., et al., Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul-Aug 71, pp 145-151

were annealed for one hour at the test temperature. It was found that by ultrasonic irradiation and preliminary plastic deformation followed by annealing at the test temperature, the rate of high-temperatures creep for aluminum is substantially lowered. The observed strengthening in the region of large degrees of preliminary deformation and irradiation for 30 seconds can be a basis for developing a technological treatment for increasing creep strength of aluminum for conditions of long-time high-temperature loads. Six figures, 17 bibliographic references.

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EFFECT OF PREVIOUS ULTRASONIC IRRADIATION ON THE HIGH TEMPERATURE CREEP AND MICROHARDNESS OF COPPER -U-

AUTHOR-(04)-BAZELYUK, G.YA., KOZRSKY, G.YA., POLOTSKY, I.G., PETRUNIN, G.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, MAR. 1970, 29(3), 508-511

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--COPPER, HIGH TEMPERATURE EFFECT, ULTRASONIC IRRADIATION, METAL MICROHARDNESS, METAL CREEP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0206 STEP NO--UR/0126/70/029/003/0508/0511

CIRC ACCESSION NO--AP0129462

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510006-3"

2/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF ULTRASONIC IRRADIATION ON THE CREEP AND MICROHARDNESS OF CU AT ELEVATED TEMP. (500DEGREESC) WAS STUDIED. PRELIMINARY ULTRASONIC IRRADIATION GREATLY INCREASED THE RESISTANCE TO HIGH TEMP. CREEP; THE LIFE OF CU SAMPLES IRRADIATED TO AN OPTIMUM EXTENT INCREASED BY A FACTOR OF 3 AND THE STEADY CREEP RATE WAS 8 TIMES SLOWER THAN IN SAMPLES NOT SUBJECTED TO IRRADIATION. THE MICROHARDNESS OF SOME SAMPLES BEFORE IRRADIATION WAS 40 KG-MM PRIME2; AFTER IRRADIATION FOR 10 MIN THIS VALUE DOUBLED. THE GEOMETRICAL DIMENSIONS OF THE IRRADIATED PARTS WERE UNAFFECTED BY THIS TREATMENT.

UNCLASSIFIED

1/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF TEMPERATURE, ELECTRIC FIELD, AND ILLUMINATION ON THE ABSORPTION OF ULTRASOUND IN SBSI IN THE PHASE TRANSITION TEMPERATURE

AUTHOR-(05)-ZAPOROZHETS, O.I., LYAKHOVITSKAYA, V.A., PEKAR, S.I., POLOTSKIY, I.G., SILVESTROVA, I.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 671-2

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ULTRASONIC ABSORPTION, THERMAL EFFECT, ELECTRIC FIELD, PHASE TRANSITION, TRANSITION TEMPERATURE, PARAELECTRIC MATERIAL, FERROELECTRIC MATERIAL, ILLUMINATION, IODIDE, SULFUR COMPOUND, ANTIMONY COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0061 STEP NO--UR/0181/70/012/002/0671/0672

CIRC ACCESSION NO--AP0105158

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